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FACSIMILE COVER SHEET

DATE: April 15, 2003

OUR REF.: MTS-3181US

TIME: 12:05 PM

YOUR REF.: 09/471,981

DS

TO: LY T. TRAN

COMPANY: U.S. PATENT AND TRADEMARK OFFICE

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TITLE OF DOCUMENT: Response to Final Office Action Dated 01/17/03

Total Number of Pages: **5** (including this form)

COMMENTS

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MTS-3181US

PATENT

18/Response
NE
P. Wells
4-17-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	E. Igaki et al.	: Art Unit:	2853
Serial No.:	09/471,981	: Examiner:	Ly T. Tran
Filed:	December 23, 1999	: EXPEDITED PROCEDURE	
For:	INK-JET RECORDING HEAD	: 37 C.F.R. § 1.116	

RESPONSE TO
FINAL OFFICE ACTION DATED JANUARY 17, 2003

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Assistant Commissioner for Patents
 Washington, D.C. 20231

APR 15 2003

SIR :

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Responsive to the various paragraphs of the **Final Office Action** dated **January 17, 2003**, Applicants offer the following remarks:

Claims 1, 4, 5, 40, 41, 43, 51, 53, 54, 56, 65-69, 72, 75 and 77-80 have been allowed.

Claims 3, 39, 42, 44-50, 58, 59, 61-63, 71, 76, 81 and 82 stand rejected.

Section 103 Rejections:

Claims 3 and 81 have been rejected as being obvious in view of Sugahara, Tsukada and Watanabe. Applicants respectfully submit that this rejection is overcome for the reasons set forth below.

Watanabe has a publication date of November 30, 2000. This application has a priority date of December 25, 1998, which is earlier than Watanabe's publication date. Applicants respectfully request that Watanabe be removed as a reference.

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Claim 3 recites the following features:

- **at least one of the electrodes is embedded in the partition wall ...,**
- **the first ink pressure chamber, the first partition wall, the pressure buffer chamber, the second partition wall and the second ink pressure chamber are arranged in sequence along a thickness direction of the piezoelectric block,**
- **the first fixed wall disposed adjacent to the first ink pressure chamber and the second fixed wall disposed adjacent to the second ink pressure chamber,**
- **surfaces of the two electrodes are oriented perpendicular to the thickness direction, the driving portion is polarized in the thickness direction and perpendicular to the surfaces of the electrodes.**

The feature of an **electrode embedded in a partition wall** is shown in FIG. 4, for example. As shown, a partition wall (4a, 4b) includes two electrodes (7a). One of the electrodes is embedded in the partition wall.

The Final Office Action admits, at page 3, the fifth paragraph, that Sugahara fails to teach **at least one of the electrodes is embedded in the partition wall**. Since Watanabe (cited for an embedded electrode) is not a proper reference, this feature is not suggested by any of the other references. Applicants, therefore, respectfully submit that claim 3 is patentable over the cited references.

Furthermore, as recited in claim 3 and shown, for example, in Fig. 4, the first ink pressure chamber 3a, the first partition wall 4a, the pressure buffer

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chamber 5, the second partition wall 4b, and the second ink pressure chamber 3b are arranged in sequence along a thickness direction. As further recited, and shown in Fig. 4, first fixed wall 6 is disposed adjacent to first ink pressure chamber 3a, and second fixed wall 6 is disposed adjacent to second ink pressure chamber 3b. Sugahara, on the other hand, shows fixed wall 102 on the left side of Fig. 2 and a fixed wall (not labeled) on the right side of Fig. 2. The fixed wall on the left side is disposed adjacent to air channel 116 and the fixed wall on the right side is disposed adjacent air channel 115. Accordingly, Sugahara does not disclose or suggest a **first fixed wall disposed adjacent to an ink pressure chamber**, and Sugahara does not disclose or suggest a **second fixed wall disposed adjacent to an ink pressure chamber**. Sugahara is thus different from the features in claim 3. Favorable reconsideration is requested for claim 3.

Moreover, claim 3 recites that the driving portion is **polarized in the thickness direction**, where the thickness direction, as shown in Fig. 4 (for example) is **perpendicular to the surfaces of the electrodes**.

Sugahara, on the other hand, discloses that the polarization is in a direction indicated by arrow 5, as shown on the right side of Fig. 2. This is also disclosed in Sugahara, at column 4, line 24. Sugahara, therefore, discloses a polarization that is parallel to the electrodes and perpendicular to the thickness direction. Sugahara thus does not disclose the feature of the polarization being perpendicular to the electrodes, as recited in claim 3. Reconsideration is requested for claim 3.

Claim 81:

Although not the same, claim 81 includes features similar to claim 3. Reconsideration is requested for claim 81 for the same reasons set forth above for claim 3.

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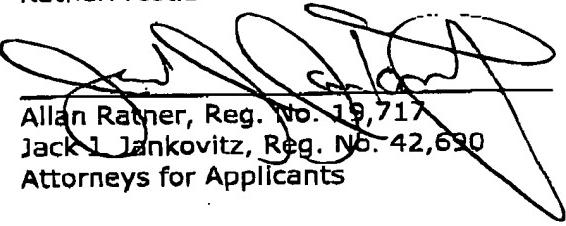
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Dependent Claims:

Dependent claims 39, 42, 44-50, 58, 59, 61-63, 71 and 76, which depend from claim 3, and dependent claim 82, which depends from claim 81, are not subject to rejection in view of the cited references for at least the same reasons set forth for claim 3.

Respectfully Submitted,

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Dated: April 15, 2003

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The Assistant Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. 18-0350 of any fees associated with this communication.	I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office (Fax No. (703) 308-7724) on the date shown below.
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April 15, 2003

